The Basics of Project Development

DOE Office of Indian Energy Assists Tribes with Putting Energy Projects into Motion

Renewable energy projects offer many potential benefits to Tribes, from more stable energy costs and enhanced energy security to higher-quality jobs and a stronger economy. To realize these benefits many tribal communities have determined that it is key to engage in strategic project planning and to develop knowledge and tools that provide them with a better shot at project success.

"The commitment and drive that make a project successful come from tribal leadership and staff as well as community energy champions," said U.S Department of Energy (DOE) Office of Indian Energy Policy and Programs (Office of Indian Energy) Director Tracey A. LeBeau. "Our Office can provide motivated Tribes with the technical resources needed to find tailored solutions for their specific situation and locale. Tribal entities can use these resources to formulate goals, analyze risks, develop clear project plans, and identify key decision points in the process."

Congress has charged the DOE Office of Indian Energy with providing technical and financial assistance to Tribes and Alaska Native entities to encourage, facilitate, and assist in energy and energy infrastructure development on tribal lands.

Before developing a renewable energy project, creating a staff- and community-level understanding of the process is a project development best practice that often includes incorporating the community's goals and its long-term vision into the project plan to serve as structural supports. DOE's Office of Indian Energy and the National Renewable Energy Laboratory have developed a series of foundational and professional educational courses that incorporate energy project development best practices into the guidance they provide on key tribal energy development topics. Tribal leadership and staff can watch these free on-demand webinars at any time to learn about assessing renewable energy resources, gain a basic understanding of renewable energy technologies, and identify best practices for pursuing energy projects. Access the courses at www.nterlearning.org (search for "Indian Energy").

One of the courses in the series, titled "Tribal Renewal Energy Project Development and Financing Essentials," provides a useful framework for Tribes interested in renewable energy project development. It includes standard and relevant development processes, including critical decision points, risk-reward analysis frameworks, and market-based technology and financing considerations–all designed to support tribal leaders and professional staff as they consider next steps and weigh decisions for their communities.

Benefits of Tribal Renewable Energy Project Development

- Generate revenue from energy production
- Create new job opportunities
- Improve energy reliability
- Promote energy self-sufficiency
- Support environmental sustainability
- Increase exposure to industry.

Photo by Alex Dane, NREL 23630

Why the Project Development Process Is Important

To move energy projects and initiatives forward, visioning and developing a long-term strategy and a clear path to reach tribal goals are often key, and these emerge as common themes amongst Tribes that have moved their vision into reality. The community energy planning process is outlined in the DOE Office of Indian Energy's *Developing Tribal Energy Projects: Community Energy Planning* publication. After the Tribe has developed a strategic energy plan, the next step is to assess available resources to determine which types of renewable energy projects to consider. The scale of a project will depend on the goals identified in the strategic energy plan, available land or other sites such as rooftops, technical and management resources, and tribal members' commitment and interest.

For example, if a Tribe seeks to offset utility costs for a facility, a grid-connected system on an existing building might be a good place to start. If a Tribe is looking to achieve energy self-sufficiency, a community-scale system to power the operations of tribal government and various enterprises might be more appropriate. Or if the objective is to generate a long-term revenue stream, a large commercial-scale project might be worth considering. In general, the complexity and expense increase as the project progresses, which makes early decision points critical. The project development framework summarized here is based on the experience of many successful project managers and is specifically tailored to serve tribal needs.

Key Steps to Success

The following process focuses on key decision points and outlines a chronological path to smart renewable energy development. There are council check-ins at crucial points in the five-step process, which are critical to the success of any energy project.

Step 1: Determine project potential. This step involves gathering data and identifying whether the basic elements required for a successful project exist. A careful assessment of the Tribe's resources will determine the best opportunities to pursue. At the end of this step, the Tribe should be confident that there is an adequate renewable resource at an appropriate location (or locations). Based on preliminary analyses, the benefits should outweigh the risks, and the potential return on investment from the project should justify the risks and costs.

Step 2: Identify and narrow project options. This is the time to finalize the project location and determine the Tribe's role. If the plan includes partners to help finance and/or develop the project, identify those partners and begin structuring the Tribe's relationships with them now. For example, although the Tribe is not taxable, it can partner with third-party tax investors and/or developers to take advantage of tax equity incentives. This can lower capital costs for qualifying projects by as much as 40%–50%. At this time, the Tribe should also understand and begin planning for permitting and site use considerations. In addition, it should investigate interconnection agreements and utility requirements.

Step 3: Refine the plan. By the end of Step 2, the Tribe has determined—based on the project's goal and economics—that the project merits continued planning. Up until this point, the Tribe has spent a lot of time but not a lot of money. In Step 3, the Tribe makes the big decisions about whether to commit to the project and confirms many of the details. For example, during this step a Tribe may choose partners (or not), finalize the economic model and organizational structure, select vendors, complete environmental reviews and finalize permits, and set up interconnection and power purchase agreements.

Step 4: Implement the project. In this step, the Tribe completes preconstruction tasks as well as the actual project construction and equipment installation. The installation will also be interconnected to the utility, commissioned, and put into commercial operation.

Step 5: Operations and maintenance. Renewable energy projects typically have lower operations and maintenance (O&M) costs than other energy projects, but it is still very important to understand and anticipate the expense of taking care of the equipment and training the people who will perform O&M work. If the Tribe used a developer partner, O&M may be included in the partner's contract.

Project Development in Action

The DOE Office of Indian Energy provides project development and financing technical assistance to Tribes through the Strategic Technical Assistance Response Team (START) Program and on-demand technical assistance. Below are examples of Tribes that have received federal support to help move their clean energy projects forward.

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>
> —Phil Hobbs
> Planning Supervisor, Tohono O'odham Nation

Tribe Basks in Its Resources

The Tohono O'odham Nation in southern Arizona is rich in natural beauty and sunshine. In fact, the sun shines an average of 350 days every year. According to DOE, the total technical potential on the Tribe's land for electricity generation from rural utility-scale solar resources is nearly 1 billion megawatts.

Tohono O'odham plans to make the most of that by developing photovoltaic (PV) projects. The initial project involves an agreement with the local utility, Tucson Electric Power, which will lease tribal land to site a utility-scale PV power plant. The project is expected to result in multiple benefits to the Tribe at relatively low risk.

"In addition to making lease payments, the utility plans to hire about a third of the project workforce from the Nation," said Phil Hobbs, Tohono O'odham Nation planning supervisor. "We expect to learn a lot through this process."

Comprised of 12 districts, the Nation has had broad support for renewable energy development for many years. In fact, one of Tohono O'odham's communities had a solar powered pump for its well installed more than 30 years ago, so the concept and benefit of solar power has been on the Nation's mind for a long time, according to Hobbs.

Tohono O'odham also has the added advantage of power lines from three different utilities either crossing its land or coming to its boundary. This makes selling the power generated by PV projects easier to sell and transmit.

"We've been involved in the planning process for renewable energy projects for a number of years," said Hobbs. "The project development training that the DOE Office of Indian Energy did for us helped familiarize our Tribal Council with the process, and the technical assistance we've received from the national labs over the years helped build confidence that we could successfully execute these projects."

The Tohono O'odham Nation in southern Arizona is developing solar energy projects to take advantage of its abundant sunshine.
Photo from Tohono O'odham Nation

More specifically, Hobbs said the DOE Office of Indian Energy's assistance with implementation of the development process for Tohono O'odham's solar project featured three primary elements:

- Initial training and a community survey that resulted in a draft renewable energy strategy
- A presentation to the Nation's Legislative Council
- Advanced training for the Council on renewable energy development.

Because each step "built upon the previous one," Hobbs said the development process improved the viability of the project and that this education was key to its successful approval.

He described Council's approval as "quick and easy," due in part because the proposed site is on reclaimed mine tailings and not pristine desert.

The Nation's first project did not have a Request for Proposal (RFP) because the land-lease agreement proposed by the utility company (in which it will own, operate, and maintain the project) was considered a good first step at renewable energy development. On future projects, Hobbs said the Nation will issue RFPs and have an ownership interest.

The Nation's second PV project has special requirements, so it issued a Request for Qualifications (RFQ).

Hobbs said the assistance provided by the DOE Office of Indian Energy and NREL has been "critically important" to that project and helped condense the RFQ process (composing the document to selection) into just three months.

Both of the PV projects align with Tohono O'odham's vision of sustainable economic development that generates revenue without creating air pollution or severe environmental impacts to the Tribe's beautiful land.

Biomass to Help Tribe Meet Ambitious Goals

The Forest County Potawatomi Community in Wisconsin has set ambitious energy and greenhouse gas emissions-reduction goals despite the dated heating systems of its government complex in the city of Crandon. This has led the Tribe to explore utilizing its abundant biomass resource to meet building energy needs while pursuing those goals.

"The Community's challenge was to site and size in a way that maximized economic payback without adversely impacting the Community's Class I Air or forest management practices," said Nathan Karman, a member of Forest County's legal team. "To help move toward implementation, the Community requested and was awarded assistance from the START Program."

The START technical assistance team provided a market context analysis and then analyzed potential biomass projects within that context. Initially, the Community was interested in a biomass gasification system, but because of uncertainty about the technology, the START team focused primarily on a renewable energy system that uses local nonfood biomass feedstock to supply heat for tribal government facilities. The START team validated the feasibility of the system and recommended a more detailed feasibility study.

According to Karman, this five-step development process was helpful in advancing the project. The assistance provided sufficient background about project potential, and now the Community just needs to refine the project to ensure that it fully "understands the environmental and forestry impacts," he said.

Through START, the Community also received an energy planning workshop aimed at consensus-building that resulted in an energy plan and vision to advance and guide its energy initiatives. The workshop led to the creation of an Energy Working Group, which meets monthly and reports regularly to the Community's Executive Council. It also works to investigate and communicate energy projects, policies, and initiatives.

The Forest County Potawatomi Community is considering a system that uses nonfood biomass feedstock to supply heat for tribal government facilities. It is similar to the biomass system shown here. *Photo by Jim Yost, NREL 11915*

"Regardless of what happens with the biomass project, this important group is a legacy of the START assistance," Karman said.

If implemented, the biomass district-heat system suggested by the START team has the potential to reduce the Tribe's annual heating fuel costs by $70,000.

Learn More

To read more success stories in tribal energy development and access helpful resources for strategic energy planning and renewable energy project development, visit DOE Office of Indian Energy Resource Library at *www.energy.gov/indianenergy/resources/energy-resource-library*.

Learn more about the START Program at *www.energy.gov/indianenergy/resources/start-program.*

Learn about the renewable energy technology potential on tribal lands at *www.nrel.gov/docs/fy13osti/57748.pdf.*

Renewable Energy Curriculum and Technical Assistance for Tribes

The DOE Office of Indian Energy offers a series of online educational courses specifically for tribal leaders and professionals. These free, on-demand webinars provide an overview of renewable energy technologies, strategic energy planning, and renewable energy project development and financing. Access the webinars at *www.nterlearning.org* (search for "Indian Energy").

Tribes can apply to receive up to 40 hours of free technical assistance from DOE to help with strategic energy planning. Apply online at *energy.gov/indianenergy/technical-assistance*.

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